| Inde | x of | Claims | ; |
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| Application/Control No | ), |
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10/822,055

Examiner

Michael P. Stafira

Applicant(s)/Patent under Reexamination

KIM ET AL.

Art Unit

2877

| <br>√ | Rejected |
|-------|----------|
| =     | Allowed  |

| _ | (Through numeral)<br>Cancelled |
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| Cla      | im       |         |              |           |   | _ [      | Date         | 9  |          |                | _        |   | Cla          | aim      |          |          |              | [            | Date         | •            |  |              |          |
|----------|----------|---------|--------------|-----------|---|----------|--------------|--|----------|----------------|----------|---|--------------|----------|----------|----------|--------------|--------------|--------------|--------------|--|--------------|----------|
| Final    |          | 2/2/57  |              |           |   |          |              |  |          |                |          |   | Final        | Original |          |          |              |              |              |              |  |              |          |
| $\vdash$ | 1        | =       | $\dagger$    | $\dagger$ |   |          | _            |  |          |                | _        |   |              | 51       |          |          |              | $\Box$       |              |              |  |              |          |
|          | 2        | ī       | Ť            | +         |   |          |              |  |          |                |          |   |              | 52       |          |          |              |              |              |              |  |              |          |
|          | 3        | 1       | T            | 丁         |   |          |              |  |          |                |          |   |              | 53       |          |          |              |              |              |              |  |              |          |
|          | 4        | П       | T            |           |   |          |              |  |          |                |          |   |              | 54       |          |          |              |              |              |              |  |              |          |
|          | 5        | $\prod$ |              |           |   |          |              |  |          |                |          |   |              | 55       |          |          |              |              |              |              |  |              |          |
|          | 6        |         | L            |           |   |          | L            |  |          |                |          |   |              | 56       |          |          |              |              |              |              |  |              |          |
|          | 7        | Ц       | L            | 1         |   |          | L            |  |          |                |          |   |              | 57       | _        |          |              | <u> </u>     |              |              |  |              |          |
|          | 8        | Ц       | ╀            | 4         |   |          | <u> </u>     |  |          |                |          |   |              | 58       | _        |          | _            |              | _            |              | _  | -            |          |
| _        | 9        | H       | ╀            | 4         | _ |          | <u> </u>     |  | _        |                |          |   |              | 59       | H        | _        |              | <u> </u>     |              | -            | $\vdash$   | -            | _        |
|          | 10<br>11 | ╫       | ╀            | +         |   | _        |              | _  | _        | <del> </del>   |          |   |              | 60<br>61 | -        |          | <u> </u>     | -            | $\vdash$     | $\vdash$     | -  |              | _        |
| -        | 12       | ╁       | +            | +         | _ |          | <del> </del> |  | $\vdash$ | <del>  -</del> |          |   |              | 62       |          |          |              | ┝            | ┢            | ⊢            | -  | Н            | -        |
| _        | 13       | +       | ╁            | +         | _ |          | -            |  | $\vdash$ | ├─             | _        |   |              | 63       | -        |          |              | ├─           | -            | $\vdash$     | ├─   | $\vdash$     | _        |
| _        | 14       | H       | +            | +         |   | $\vdash$ | -            | -  | $\vdash$ | $\vdash$       |          |   |              | 64       | -        |          | $\vdash$     | $\vdash$     | -            | $\vdash$     | $\vdash$   | $\vdash$     |          |
| -        | 15       | Ħ       | ╁            | +         | - |          |              |  |          |                |          |   |              | 65       | $\vdash$ |          |              |              |              |              |  | П            | _        |
|          | 16       | H       | ╁            | 1         |   | $\vdash$ |              | _  |          |                |          |   |              | 66       |          |          |              |              |              |              |  |              |          |
|          | 17       | Ħ       | T            | 寸         |   |          |              |  |          |                |          | Ì |              | 67       |          |          |              |              |              |              |  |              |          |
|          | 18       | Ħ       | T            | T         |   |          |              |  | Г        |                |          |   |              | 68       |          |          |              |              |              |              |  |              |          |
|          | 19       | П       | T            |           |   |          |              |  |          |                |          |   |              | 69       |          |          |              |              | _            |              |  |              |          |
|          | 20       | П       | L            |           |   |          |              |  |          |                | _        |   |              | 70       |          |          |              |              |              | _            |  | $oxed{oxed}$ | _        |
|          | 21       | Ц       |              | $\perp$   |   |          |              |  |          | <u> </u>       | _        |   |              | 71       |          |          | _            | <u> </u>     | <u> </u>     | _            | L  |              |          |
|          | 22       | Ц       | $\downarrow$ | 4         |   |          | L            | _  | <u> </u> |                | <u> </u> |   |              | 72       | <u> </u> |          |              | <u> </u>     | _            |              |  |              | _        |
| L        | 23       | 1       | $\downarrow$ | 4         |   | _        | _            |  |          | ╙              | _        | Į |              | 73       | <u> </u> |          | _            | ļ            | <u> </u>     |              | <u> </u>   |              |          |
| <u> </u> | 24       | H       | +            | -         | _ | <u> </u> | <u> </u>     | <u> </u>   |          | <u> </u>       | <u> </u> | ł |              | 74       | ⊢        | -        |              | H            | -            | ├            | -  | -            |          |
| <u> </u> | 25<br>26 | H       | +            | -         |   |          | -            | -  | ├-       | ┝              | -        | ł |              | 75<br>76 | $\vdash$ | -        | _            |              | ⊢            | ├            | ┝  | -            |          |
|          | 27       | H       | ╁            | $\dashv$  |   | ├        |              | -  |          | $\vdash$       | ┝        | ł |              | 77       | -        |          | $\vdash$     | -            | ╁            | ╁─           | $\vdash$   |              |          |
| -        | 28       | H       | +            | ┪         |   |          | -            | $\vdash$   |          | $\vdash$       | -        | 1 |              | 78       | $\vdash$ |          |              | <del> </del> | $\vdash$     | ┢            | -  | -            |          |
|          | 29       | H       | $^{+}$       | +         |   | ┢        | ┢            | ┢  | ┢╾       | <u> </u>       |          | ſ |              | 79       | $\vdash$ |          | ╁            |              | H            | _            | $\vdash$   |              | -        |
|          | 30       | H       | 十            | +         |   | $\vdash$ |              | ┢╌   |          | ┢              | -        | 1 |              | 80       | T        | _        | T            |              | <u> </u>     |              |  |              |          |
|          | 31       | Ħ       | ╁            | 7         | _ |          |              | 一  | -        |                |          | 1 |              | 81       | $\Box$   |          |              |              |              |              |  | Г            | Γ        |
|          | 32       | П       | T            | ヿ         |   | $\Box$   |              |  |          |                |          | 1 |              | 82       |          |          |              |              | Ì            |              |  |              |          |
|          | 33       | П       | Ι            |           |   |          |              |  |          |                |          | ] |              | 83       |          |          |              |              |              |              |  |              |          |
|          | 34       | $\prod$ | Ι            |           | _ |          |              |  |          | 匚              |          | 1 |              | 84       | 匚        | _        |              |              |              | L            | <u> </u>   |              | L        |
|          | 35       | Ц       | 1            | $\prod$   |   |          | $oxed{oxed}$ | ╙  | <u> </u> | <u> </u>       | L        | 1 |              | 85       | $\vdash$ | <u> </u> | _            | _            | <u> </u>     | <u> </u>     | <b>⊢</b>   | _            | <u> </u> |
| <u></u>  | 36       | Ц       | 1            | _         |   | _        | _            | $oxed{oxed}$                                     | <u> </u> | <u> </u>       | L        | 1 | L            | 86       | <u> </u> | <u> </u> | _            | _            | <u> </u>     | <del> </del> | <del> </del>                                     | <u> </u>     | <u> </u> |
| <u> </u> | 37       | 1       | -            | 4         | _ | -        | -            | 1  | $\vdash$ | <b>├</b> -     | <u> </u> | - | <u> </u>     | 87       | $\vdash$ | -        | -            | $\vdash$     | ₩            | ├-           | $\vdash$   | -            | -        |
| -        | 38       | =       | 1            | $\dashv$  | _ | -        | ⊢            | ⊢  | -        |                | $\vdash$ | - | <u> </u>     | 88       | $\vdash$ |          | <del> </del> | ├            | ╌            | ├            | $\vdash$   | 1            | $\vdash$ |
|          | 39       | ╀       | +            | -         | _ | $\vdash$ | -            | ├  | ┼        | $\vdash$       | $\vdash$ | - | <del> </del> | 90       | $\vdash$ | -        | -            | ┝            | ├            | $\vdash$     | +  | $\vdash$     | ┢        |
|          | 40       | ╁       | +            | $\dashv$  |   | $\vdash$ | -            | $\vdash$   | $\vdash$ | +              | -        | 1 | $\vdash$     | 91       | $\vdash$ | $\vdash$ | $\vdash$     | $\vdash$     | $\vdash$     | $\vdash$     | $\vdash$   | $\vdash$     | -        |
|          | 42       | ╁       | +            | $\dashv$  |   | +-       | +-           | $\vdash$   | $\vdash$ | $\vdash$       | 1        | 1 |              | 92       | $\vdash$ | $\vdash$ | <del> </del> | $\vdash$     | 1            | $t^-$        | T  | $\vdash$     | Т        |
|          | 43       | t       | +            | -         |   | $\vdash$ | H            | <del>                                     </del> | †        | T              | $\vdash$ | 1 |              | 93       |          |          | Т            |              | $\vdash$     | $\vdash$     | <del>                                     </del> | T            | T        |
| $\vdash$ | 44       | $t^{-}$ | +            | $\dashv$  |   | Т        | T            | 1  | T        | T              | $\vdash$ | 1 |              | 94       | Г        | Т        | Т            | 1            | T            |              | 1  | Г            | Γ        |
|          | 45       | $\top$  | $\top$       | 7         |   | Τ        | $\top$       |  | T        | Π              | $\vdash$ | 1 |              | 95       |          |          |              | Γ            |              | I            | L  |              |          |
|          | 46       | T       | T            | $\neg$    |   |          |              |  |          |                |          | ] |              | 96       |          |          |              |              |              |              | $\Box$   |              | Ĺ        |
|          | 47       | Ι       |              |           |   | L        |              |  |          |                |          | ] |              | 97       |          |          |              |              |              |              | 匚  | 匚            |          |
|          | 48       | Γ       | I            | $\Box$    |   |          |              |  |          | 匚              |          | 1 |              | 98       | $\perp$  | L        | L            |              |              | L            | <u> </u>   | L.           | _        |
|          | 49       | Ľ       | Ţ            |           |   |          |              |  | _        | <u> </u>       |          | 1 |              | 99       | <u>_</u> | <b> </b> |              | L            | <del> </del> | <del> </del> | _  | ├            | ┞-       |
|          | 50       |         |              |           |   | L        | $\perp$      | 1_   | <u>_</u> |                |          | ] | L            | 100      |          |          | L            | L            |              |              | 1_   | <u></u>      | L        |

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|----------|----------|----------|-------------|--------------|----------|----------|--|--|--|--|
|          |          |          | $\neg$      |              |          |          |  |  | П  |  |
| Final    | Original |          |             |              |          |          |  |  |  |  |
|          | 51       |          |             |              | 寸        |          |  |  |  |  |
|          | 52       | $\neg$   |             |              |          |          |  | $\neg$ i   |  |  |
|          | 53       | ヿ        | 一           | $\neg$       |          |          |  |  | $\neg$   |  |
| $\vdash$ | 54       | -        | _           | $\dashv$     | $\dashv$ | 一        |  |  |  | _  |
| $\vdash$ | 55       | ⊣        |             |              | -        |          | $\dashv$   | $\dashv$   |  |  |
| $\vdash$ | 56       | $\dashv$ | $\dashv$    | -            | -        | -        | -  |  | $\dashv$   |  |
|          |          | -        |             | _            | -        | -        | $\dashv$   |  |  |  |
| -        | 57       | $\dashv$ | -           | -            |          | -        | -  |  |  |  |
| -        | 58       |          | $\dashv$    | $\dashv$     |          |          | -  | -  |  |  |
| $\vdash$ | 59       |          | $\dashv$    |              | $\dashv$ | $\dashv$ |  | $\dashv$   | -  | _  |
| <u> </u> | 60       | 4        | $\dashv$    | $\dashv$     | -        | $\dashv$ | $\dashv$   |  | _  |  |
| -        | 61       | -        | $\dashv$    |              | $\dashv$ | $\dashv$ | _  |  | =  |  |
| $\vdash$ | 62       |          | $\dashv$    |              |          | 4        | _  |  | _  |  |
|          | 63       |          | _           | _            | _        |          | -  | $\dashv$   | _  |  |
|          | 64       | _        | _           | _            |          | _        |  | _  | _  |  |
|          | 65       |          | _           | _            |          |          |  |  | _  |  |
|          | 66       | _        | _           |              |          |          |  |  |  |  |
|          | 67       | _        |             |              |          |          |  |  |  |  |
|          | 68       | $\Box$   |             |              |          |          |  |  |  |  |
|          | 69       | _        | _           |              |          |          |  |  |  |  |
|          | 70_      | $\Box$   |             |              |          |          | i  |  |  |  |
|          | 71       |          |             |              |          |          |  |  |  |  |
|          | 72       |          |             |              |          |          |  |  |  |  |
|          | 73       |          |             |              |          |          |  |  |  |  |
|          | 74       |          |             |              |          |          |  |  |  |  |
|          | 75       | _        |             |              | _        |          |  |  |  |  |
|          | 76<br>77 | _        |             |              |          | _        | <u> </u>   |  |  |  |
|          | //       |          |             | _            |          | _        | _  |  | _  |  |
|          | 78       |          |             |              |          |          |  | _  | _  | _  |
|          | 79       |          | _           |              |          |          |  | _  |  | <u> </u>   |
|          | 80       | _        |             |              |          |          |  |  | _  | -  |
|          | 81       |          |             |              |          |          | <u> </u>   | _  | _  | <u> </u>   |
|          | 82       | _        |             |              |          |          |  | _  | _  | <u> </u>   |
| <u> </u> | 83       | _        | $\square$   | _            | <u> </u> | Ь.       |  | <u> </u>   | <u> </u>   | <u> </u>   |
| -        | 84       | _        | _           |              | $\vdash$ | H        | <b> </b> -                                       | <u> </u>   | <u> </u>   | -  |
| ļ        | 85       | _        | _           | نــــا       | $\vdash$ | $\vdash$ |  | $\vdash$   | <u> </u>   | ┝  |
|          | 86       | <u> </u> |             | _            | $\vdash$ | <u> </u> | <del> </del> —                                   | $\vdash$   | <u> </u>   | ┝  |
| -        | 87<br>88 |          |             |              | $\vdash$ | -        |  | ├  | <del> </del>                                     | ├-   |
| -        |          | _        |             |              | $\vdash$ | <u> </u> | ├—   | $\vdash$   | $\vdash$   | ⊢  |
| -        | 89<br>90 | -        |             | -            | -        |          | $\vdash$   | ├-   | $\vdash$   | ├  |
| -        |          |          |             | -            | $\vdash$ | $\vdash$ |  | $\vdash$   | -  | ├-   |
| -        | 91       |          | -           | ⊢−           | H        | $\vdash$ | ├  | $\vdash$   | $\vdash$   | $\vdash$   |
|          | 93       | -        | -           | H            | $\vdash$ | -        | $\vdash$   |  | $\vdash$   | ┝  |
|          | 94       | -        | -           | <del> </del> | -        | -        | -  | <del> </del>                                     | <del> -</del>                                    | $\vdash$   |
| -        | 95       | -        |             | -            | -        | -        | <del>                                     </del> | $\vdash$   | $\vdash$   | $\vdash$   |
|          | 96       | $\vdash$ |             | $\vdash$     | H        | $\vdash$ | $\vdash$   | _  | $\vdash$   | ┢  |
| -        | 97       |          |             | $\vdash$     |          | $\vdash$ | ╁  | $\vdash$   | $\vdash$   | <del>                                     </del> |
| $\vdash$ | 98       | $\vdash$ | <del></del> | <del> </del> |          | $\vdash$ | $\vdash$   | <del>                                     </del> | <del>                                     </del> | -  |
|          | 99       |          |             | $\vdash$     | $\vdash$ | $\vdash$ | $\vdash$   |  | _  | $\vdash$   |
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|-------------------|----------|---------------------------------|--------------|----------|--|----------|--------------|----------|----------|--|--|
| 1 (               |          | =                               |              |          |  |          |              |          |          |  |  |
| 7                 | <u> </u> | Original                        |              |          |  |          |              | Ì        |          |  |  |
| 1                 | Lua      | ·ĒΙ                             | .            |          |  |          | ļ            |          |          |  |  |
| -                 | ~        | 0                               | İ            |          |  |          |              |          |          |  |  |
| ┨┝                |          | 101                             | $\dashv$     |          | $\vdash$   |          |              | $\dashv$ | ┪        | -  | $\vdash$   |
| ┤├─               | $\dashv$ | 101<br>102                      |              |          | $\vdash$   | -        |              | -        | -        |  | $\exists$  |
| ┦┝                | $\dashv$ | 102                             |              |          | $\vdash$   | -        |              | -        | -        |  | $\vdash$   |
| J ⊢               | -        | 103                             | $\dashv$     |          | _  |          |              | $\dashv$ | _        |  | -  |
| ┙┕                | _        | 104<br>105                      | _            |          |  |          |              | _        |          |  | -  |
| ┙┕                |          | 105                             |              |          |  |          |              | _        |          |  |  |
|                   |          | 106                             |              |          |  |          |              |          |          |  |  |
|                   |          | 107<br>108                      |              |          |  |          |              |          |          |  |  |
| 1                 |          | 108                             |              |          |  |          |              |          |          |  |  |
| 1                 |          | 109                             |              |          |  |          |              |          |          |  |  |
| 1                 | ╅        | 110                             |              |          |  |          |              |          |          |  |  |
| 1                 | $\neg$   | 111                             |              |          |  |          |              |          |          |  |  |
| ┨ ├─              | $\dashv$ | 112                             |              |          | <del>                                     </del> | -        |              |          |          |  |  |
| ┥ ├─              | +        | 112<br>113                      |              |          | $\vdash$   | -        |              | Н        |          |  | $\vdash$   |
| ┨ ├─              | $\dashv$ | 114                             | -            | —        | $\vdash$   |          | -            |          |          | _  |  |
| -                 | $\dashv$ | 115                             | _            | _        | $\vdash$   |          | _            | -        |          | -  | $\vdash$   |
| ┤├                | $\dashv$ | 115<br>116                      |              |          | -  | $\vdash$ | -            | _        | _        | -  |  |
| -                 | -+       | 116                             |              |          | -  | _        | _            |          | _        | _  | _  |
| <b>-</b>          |          | 117                             |              |          | _  | _        |              |          |          | _  | H  |
| ┨┢                | _        | 118                             |              |          | _  | _        |              |          |          |  | L  |
| ╛┕                |          | 119                             | _            |          | <u></u>  |          |              |          |          | <u> </u>   | L  |
| J                 |          | 120<br>121                      |              |          | <u> </u>   |          | _            |          | _        | _  | _  |
| JL                |          | 121                             |              |          |  |          |              |          |          |  |  |
| J L               |          | 122 l                           |              |          |  | L        | 匚            |          |          |  |  |
| ╛┖                |          | 123                             |              |          |  |          |              |          |          |  |  |
| 7 [               | 1        | 123<br>124<br>125               |              |          |  |          |              |          |          |  | _  |
| 7 [               |          | 125                             |              |          |  |          |              |          |          |  |  |
| 7 🗆               |          | 126                             |              |          | Γ  |          |              |          |          |  |  |
| 7                 |          | 127                             |              |          |  |          |              |          |          |  |  |
| 1                 | _        | 126<br>127<br>128<br>129        |              | Г        |  |          |              |          |          |  |  |
| 1 1               |          | 129                             |              |          |  |          |              | Γ        |          | Γ  | Γ  |
| -1  -             | 一        | 130                             |              |          |  |          |              | _        |          | Г  |  |
| 1                 |          | 131                             |              | ┢        | T  |          |              |          |          | T  | _  |
| ┪┝                | $\neg$   | 131<br>132<br>133               | _            | $\vdash$ | Г  |          |              |          |          |  |  |
| ┥┝                | _        | 133                             |              | _        | ╁  |          | $\vdash$     | $\vdash$ |          | <del>                                     </del> | <del>                                     </del> |
| $\dashv$ $\vdash$ | $\dashv$ | 134                             | -            |          |  |          | _            |          | $\vdash$ | $\vdash$   | <del>                                     </del> |
| 4 H               | $\dashv$ | 135                             |              | $\vdash$ | $\vdash$   |          | $\vdash$     | $\vdash$ | $\vdash$ | $\vdash$   | -  |
| $\dashv$ $\vdash$ | $\dashv$ | 136                             | $\vdash$     |          | $\vdash$   | $\vdash$ | ┢            | $\vdash$ | $\vdash$ | <del>                                     </del> | $\vdash$   |
| ┥ ┝               | $\dashv$ | 127                             | -            | -        | ┢  | ┢        | <del> </del> | ┢        | ┝        | ├  | $\vdash$   |
| $\dashv$ $\vdash$ | $\dashv$ | 134<br>135<br>136<br>137<br>138 | $\vdash$     | -        | $\vdash$   | $\vdash$ | -            | -        | -        | $\vdash$   | -  |
| -   -             | $\dashv$ | 138                             | ⊢            | -        | 1  | $\vdash$ | -            | $\vdash$ | -        | -  | 1  |
| <b>⊣</b>          |          | 139<br>140                      | <u> </u>     | ⊢        | ⊬  |          | <u> </u>     | -        | -        |  | ⊢  |
| 4 F               |          | 140                             | <u> </u>     | ⊢        | ⊢  | _        | ⊢            | -        | $\vdash$ | ├—   | ⊢  |
| 4 L               | $\dashv$ | 141                             | <u> </u>     | <u> </u> | ├  | <u> </u> | <b>—</b>     | <u> </u> | <u> </u> | <del> </del> —                                   | ├  |
| 4 L               |          | 142                             | _            | <u> </u> | <u> </u>   | <u> </u> | <u> </u>     | <u> </u> | <u> </u> | <u> </u>   | ⊢  |
| ╛┕                |          | 143                             |              | <u> </u> | <u>L</u>   |          | L_           | L        | <u> </u> | _  | <u> </u>   |
| <b>⅃</b>          |          | 144                             |              |          | _  | _        | _            | L_       | _        | _  | _  |
| J                 |          | 145                             | $oxed{oxed}$ |          |  |          | <u>L</u>     | 匚        |          | <u> </u>   | _  |
| 」□                |          | 146                             |              |          |  |          | Ĺ            | L        |          | <u> </u>   |  |
|                   |          | 147                             |              | L        | L  | Ĺ        | L            |          | $\Box$   | L  |  |
| ╛┌                | _7       | 148                             |              |          |  |          |              |          | 匚        | L  |  |
| ] [               | $\Box$   | 149                             |              | $\Box$   |  |          |              |          |          |  |  |
| 7                 |          | 150                             |              | Γ        |  |          |              |          |          |  |  |
|                   |          |                                 | _            | _        | -  |          |              |          |          |  |  |